

“placed in service,” one year or more after the effective date of an Order adopting these limits.¹⁶⁷ MSV contended that METs manufactured within one year after the effective date of an Order adopting these new limits should be grandfathered indefinitely. MSV asserted that it would be fundamentally unfair to apply these new limits retroactively to METs manufactured prior to the adoption of a rule specifying the final limits.

102. We received no comments aside from MSV’s on the proposal to adopt these limits. Nor did we receive any comments supporting or objecting to MSV’s request to grandfather previously-operational L-band METs. We agree that previously manufactured L-band METs should be grandfathered, given the difficulty of recalling such existing METs and since there has been no complaint of interference from such devices to date. However, if we were to exempt all METs manufactured within a full year after the effective date of this Order, as requested by MSV, there might be a large unsold inventory of non-compliant METs at the end of the transition period that would pose a potentially significant interference risk if placed into service. In order to keep the number of non-compliant L-band METs low yet still give the manufacturers time to design and build compliant METs, we will apply these limits to L-band METs manufactured six months or more after Federal Register publication of this Order and grandfather all L-band METs manufactured prior to then.

2. Narrowband Limits

103. In the first Report and Order in this proceeding, the Commission adopted limits on narrowband emissions in the 1559-1605 MHz band from 1.6 GHz METs but did not adopt limits on emissions in the 1605-1610 MHz band because it had not previously proposed limits on emissions in that small segment of the 1559-1610 MHz Aeronautical Radionavigation band. In comments on the NPRM, the NTIA proposed that the e.i.r.p of narrowband spurs in the 1605-1610 MHz segment should be suppressed to a level 10 dB below the pertinent wideband limit, and accordingly suggested a -80 dBW e.i.r.p. limit on narrowband emissions in that band segment. The ITU likewise recommends that GNSS receivers have an additional 10 dB of protection against discrete emissions of less than 700 Hz in bandwidth.¹⁶⁸ Hence, the Commission proposed in the NPRM to adopt a requirement that the e.i.r.p of discrete emissions of less than 700 Hz from Big LEO METs¹⁶⁹ shall not exceed a level determined by linear interpolation from -80 dBW at 1605 MHz to -20 dBW at 1610 MHz.¹⁷⁰ Similarly, the Commission proposed to require that the e.i.r.p of such emissions from L-band METs with assigned uplink frequencies between 1626.5 MHz and 1660.5 MHz shall not exceed a level determined by linear interpolation from -80 dBW at 1605 MHz to -56 dBW at 1610 MHz and the e.i.r.p of such emissions from 2 GHz METs¹⁷¹ shall not exceed -80 dBW between 1605 MHz and 1610 MHz.¹⁷²

104. In its comments on the FNPRM, Inmarsat stated that narrowband limits for other L-band

¹⁶⁷ Mobile Satellite Ventures subsidiary LLC (“MSV”) Comments at 1.

¹⁶⁸ See Rec. ITU-R M.1477, *Technical and Performance Characteristics of Current and Planned Radionavigation-Satellite Service (Space-to-earth) and Aeronautical Radionavigation Service Receivers to be Considered in Interference Studies in the Band 1559-1610 MHz*.

¹⁶⁹ I.e., METs with assigned uplink frequencies between 1610 and 1626.5 MHz. Big LEO systems provide two-way voice and data communication via non-geostationary-orbit satellites to MET users in most areas of the world and afford seamless interconnection with the public switched telephone network.

¹⁷⁰ We adopted wideband emissions limits for Big LEOs in the First R&O. See ¶94, *supra*.

¹⁷¹ METs operating in the 1990-2025 GHz uplink band are referred to as 2 GHz METs.

¹⁷² See FNPRM at paragraph 84.

METs should be no more restrictive than those imposed on Big LEO METs.¹⁷³ Inmarsat contended that imposing more restrictive limits on L-band METs that transmit in an uplink band further away from the 1559-1610 MHz Aeronautical Radionavigation band than Big LEO METs would cause undue hardship for existing L-band MET users and manufacturers. Inmarsat asserted that neither of the ITU recommendations referenced by the Commission addresses the appropriate level of narrowband protection from L-Band METs and did not agree that the narrowband limits should be derived by subtracting 10 dB from the wideband limits.¹⁷⁴ Further, Inmarsat asserted that the Commission is not seeking to tighten the limits for the Big LEO METs because tighter limits are not needed to protect ARNS systems. If these rules are immediately enacted, Inmarsat contended, L-band MET users would need to confirm that their METs comply with the Commission's more stringent standards and replace METs that are non-compliant with those standards yet are apparently not harmful to ARNS systems. Similarly, manufacturers would need to test and might have to modify their production facilities to meet superfluous new limits. Inmarsat urged the Commission not to implement a proposed narrowband limit that does not appear to be needed to protect ARNS systems and would unnecessarily impose significant costs and disruption on L-band MET users and manufacturers.

105. MSV urged the commission to apply the stricter emission limit in the 1605-1610 MHz only to L-band METs that are manufactured one year or more after the effective date of an Order adopting these limits.¹⁷⁵ In addition, MSV contended that METs manufactured less than one year after the effective date of an Order adopting these new limits should be grandfathered indefinitely.

106. It should be possible for L-band METs to meet these new limits without significant effort since their assigned transmission frequencies are separated by a significant margin from the 1610 MHz band edge. Further, we note that the other L-band operators did not object to these proposed limits, and that NTIA claims that these levels are necessary to protect the GNSS systems. We therefore disagree that these limits are not appropriate. We have established less restrictive emission limits for Big LEO METs because those must operate in the frequency band immediately above 1610 MHz and it is infeasible for them to have more restrictive limits than proposed. Adopting the limits recommended by the ITU will promote harmonization of national technical standards and facilitate global roaming of METs. Therefore, we are adopting the proposed emission limits for all Big LEO, L-band, and 2 GHz METs.

107. We received no comments supporting or objecting to MSV's request to grandfather previously-operational L-band METs. For the reasons stated above, we will apply the same methodology to the grandfathering of non-compliant METs as for the carrier-off limits and the limits on wideband emissions from L-band transceivers in the 1605-1610 MHz segment. That is, we will apply these limits to the L-band METs manufactured six months or more after the Federal Register publication of the rule changes adopted by this order and grandfather all L-band METs manufactured prior to then.

C. Measurement Issues

108. In the first Report and Order in this proceeding, we adopted general procedures for conducting measurements for verification of compliance with both wideband and narrowband out-of-band emission limits for all METs. We prescribed a measurement interval of 20 milliseconds, as

¹⁷³ Inmarsat Ventures PLC Comments at 7.

¹⁷⁴ See Comments of INMARSAT at 8.

¹⁷⁵ Mobile Satellite Ventures subsidiary LLC ("MSV") Comments at 6.

specified in ITU-R Recommendation M.1343, but invited further comment on the advisability of prescribing a two millisecond measurement interval, instead, which the NTIA advocated in its comments on the original NPRM. We also sought comment on whether the Commission should specify a particular type of measurement detector since the measurement result depends on the detector function selected.

1. Two Millisecond Measurement Interval

109. The Commission tentatively concluded in the FNPRM that, as recommended by the NTIA, specifying a measurement interval of two milliseconds for measuring emission limits pertaining to METs using Time Division Multiple Access ("TDMA") would ensure that the emissions are measured when a TDMA MET is transmitting. It would also simultaneously quantify the interference potential to both Global Positioning System ("GPS") and Wide Area Augmentation System ("WAAS") receivers. The Commission sought public comments on this proposal.

110. In its comments, the NTIA stated that the 20 millisecond measurement time interval in ITU Recommendation ITU-R M.1343 was based on the 50 bits/second data rate of the GPS navigation message.¹⁷⁶ However, the ITU did not include a provision for the WAAS signal in this recommendation because WAAS was still in the early development stages when the recommendation was debated internationally. Recommendation ITU-R M.1343 specifies that for non-continuous signals the measurement should be performed over the active part of the burst. TDMA METs transmit data by dividing the channel into time slots with "on-time" transmission bursts and "off-time" intervals. The NTIA contended that the emissions should be measured only during an on-time active transmission timeslot and should not include an off-time interval. The NTIA also asserted that in order to properly assess the potential for interference, the MET emissions should be measured over a time interval that is related to the bit duration of the GPS and WAAS signals. This would be consistent with the approach used in ITU-R Recommendation ITU-R M.1343 to establish the measurement time interval. However, the WAAS signal is modulated with data using a symbol rate of 500 bits/second, which has corresponding bit duration of two milliseconds (1/500). Accordingly, the NTIA recommended that the Commission specify a measurement time interval of two milliseconds for all MET out-of-band emission measurements in the 1559-1605 MHz band.¹⁷⁷

111. We agree with NTIA that a measurement interval of two milliseconds for all METs would simplify compliance measurements, ensure that the emissions are measured when the MET is transmitting, and accurately quantify the interference potential to both GPS and WAAS receivers.¹⁷⁸ We also believe that measuring the out-of-band emission limit in a portion of an active transmission timeslot would ensure that there exists no higher out-of-band emission. Therefore, we are specifying that all MET out-of-band emission measurements shall take place in a two milliseconds portion of an active transmission timeslot.

2. Power-density Measurement

112. The Commission invited comments as to whether wideband power-density measurements could vary significantly depending on whether a log-average, linear average, or true Root Mean Square

¹⁷⁶ NTIA Comments at 3.

¹⁷⁷ *Id.* at 6-8.

¹⁷⁸ No other comments were received on this proposal.

("RMS")¹⁷⁹ detector is used. It also asked whether the Commission should prescribe use of a particular type of detector for testing for compliance with the wideband emission limits.

113. In its comments the NTIA contended that the Commission should require both wideband and narrowband emissions to be measured with an RMS detector,¹⁸⁰ since the measurements result will depend on the detector function selected and the interference impact to GPS receivers is quantified in terms of average power. The NTIA asserted that only a RMS detector will consistently measure the true average power of the emission level. Because the RMS detector function relates to the "voltage-squared" values of the time waveform, it tends to be more affected by the higher signal levels of the waveform.¹⁸¹ The NTIA claimed that if the choice of the detector used is left open to the user of the specification, the result would depend on the detector chosen and that such variation is clearly not acceptable for performing compliance measurements. Accordingly, the NTIA recommended that the Commission specify an RMS detector for the emission limit measurement for MSS METs. The specification of an RMS detector should be applicable to the wideband and narrowband emission limits in the 1559-1605 MHz band for both the carrier-on and carrier-off states of the MSS MET.

114. We received no other comment on this issue. We agree with the NTIA that we should avoid variation in the compliance measurements to increase repeatability. We also agree with NTIA that using different detectors can result in different values and that the RMS detector will consistently measure emission levels for both narrowband and wideband emissions. Therefore, we are specifying an RMS detector for all power density measurements for MSS METs.

D. Compliance Deadlines for Inmarsat Standard A and B Maritime Terminals

115. In comments on the NPRM, Inmarsat argued for indefinite grandfathering of Inmarsat METS currently in service because of the difficulty of retrofitting noncompliant Inmarsat terminals to meet the "-70/-80" limits by January 1, 2005. The Commission concluded in the first Report and Order that Inmarsat's argument was insufficient to justify a permanent exemption. Noting, however, that many cargo ships carry Inmarsat Standard A terminals to comply with the Global Maritime Distress and Safety System ("GMDSS") requirements, the Commission refrained from specifying a deadline for Standard A ship terminals pending further consideration, in order to avoid potential disruption of maritime safety services. The Commission invited public comments as to an appropriate future date for that deadline.

116. In its comments on the FNPRM, Inmarsat asked the Commission to set December 31, 2007 as the compliance deadline for Inmarsat-A METs.¹⁸² Inmarsat pointed out that it had already announced that Inmarsat-A services would be terminated as of December 31, 2007. It asserted that if the Commission set the same date as the compliance deadline for Inmarsat-A terminals those terminals could

¹⁷⁹ If x_1, x_2, \dots, x_n are real numbers, the Root-Mean-Square is defined as the square root of the sum of squared numbers divided by the number of numbers shown as: $R(x_1, x_2, \dots, x_n) = \sqrt{\frac{x_1^2 + x_2^2 + \dots + x_n^2}{n}}$

¹⁸⁰ NTIA Comments at 9.

¹⁸¹ According to NTIA, the logarithmic average detector function gives greatest weight to the relatively lower values in the time waveform and thus discounts voltage peaks or spikes. On the other hand, the linear average detector function tends to be more affected equally by the whole range of signal values. *Id.* at 9-10.

¹⁸² Inmarsat Ventures PLC Comments at 2 and 3.

be removed from service in an organized manner and service disruption would be avoided. In reply comments Stratos Communications supported Inmarsat's proposal to set the compliance deadline for Inmarsat A terminals at December 31, 2007.¹⁸³ We received no other comments on point.

117. We find the comments of Inmarsat and Stratos concerning the deadline to be reasonable. Since Inmarsat has announced that Inmarsat-A services will be terminated as of December 31, 2007, we agree that setting an earlier deadline might cause disruption to maritime safety services, and the potential of interference in the interim is low. Therefore, in order to avoid potential disruption of maritime safety services and allow Inmarsat-A terminals to be removed in an organized manner we are setting December 31, 2007 as the compliance deadline for Inmarsat-A METs

118. Inmarsat filed a petition for reconsideration asking the Commission to grant a temporary exemption for Inmarsat-B terminals, as well. Inmarsat-B terminals were designed as the replacement model for Inmarsat-A maritime terminals and to likewise meet GMDSS requirements. According to Inmarsat, the cost of purchasing and installing each maritime Inmarsat-B in current use was many tens of thousands dollars and such METs have a useful economic lifetime in excess of 20 years. Inmarsat stated that tests indicated that Inmarsat-B terminals made by two of the three manufacturers of such devices would comply with the proposed "-70/-80" limits, but that Inmarsat-B terminals produced by one of the manufacturers would exceed the limit by 3 dB above 1604.5 MHz. Inmarsat maintained that there was little likelihood that interference could be caused by such "marginal" non-compliance. Inmarsat further asserted that for ship owners to have their Standard-B METs tested for compliance and replace or retrofit the non-compliant terminals would be an enormous and time-consuming task. Inmarsat also maintained that subjecting Inmarsat-B terminals to the general compliance deadlines for METs placed in service before or after July 21, 2002 would cause the disruption of maritime safety services that the Commission sought to avoid by establishing the Inmarsat-A exemption.

119. We agree that requiring ship owners to have existing Standard-B equipment tested for compliance and replace or retrofit non-compliant terminals would be an enormous and time-consuming task given that currently there are over 11,500 Inmarsat-B maritime terminals in use by the U.S. Navy and Coast Guard, alone. We do not believe that it is necessary, in order to avoid inequity, to permanently exempt all non-compliant Inmarsat-B terminals, however, the number of which could become quite large in the absence of a relevant compliance deadline. We will temporarily grandfather all Inmarsat-B METs manufactured previously or within six months after Federal Register publication of the rule changes adopted herein, under the condition that they cause no interference to ARNS systems, and require Inmarsat-B terminals manufactured more than six months after the Federal Register publication date to meet the pertinent limits in Section 25.216. We are setting December 31, 2012 as the full-compliance deadline for grandfathered Inmarsat-B terminals.

V. CONCLUSION

120. The principal change in regulatory policy that we are effecting here is our adoption of a rule requiring test-based equipment certification of portable GMPCS transceivers prior to commercial importation or domestic marketing of such devices. As we have explained, the objective of this requirement, which will apply to devices manufactured more than one year after the release of this Order, is to prevent commercial distribution to users in the United States of transmitters that do not meet

¹⁸³

Stratos Communications, INC. Comments at 2.

technical standards that the Commission has prescribed to prevent destructive interference and RF radiation injury. We have decided to allow travelers to bring as many as three uncertificated GMPCS transceivers into the United States as personal effects, however, thus implementing an essential recommendation of the GMPCS MoU for adoption of entry policies facilitating international transportation of GMPCS transceivers. At the same time, we are revising rule provisions pertaining to liability for violations in order to strengthen incentives for GMPCS system operators and service providers to actively prevent or discourage unlawful transceiver operation. Finally, we are revising out-of-band emission limits for MSS transceivers in several respects in order to improve interference protection for satellite radio-navigation guidance for aircraft. We believe that these rule changes will serve the public interest.

VI. PROCEDURAL MATTERS

121. *Final Regulatory Flexibility Analysis* As required by the Regulatory Flexibility Act, 5 U.S.C. § 604, the Commission has prepared a Final Regulatory Flexibility Analysis for the rule changes adopted herein. The analysis is set forth in Appendix C.

122. *Final Paperwork Reduction Act Analysis* This Report and Order requires either new or modified information collections subject to the Paperwork Reduction Act of 1995 ("PRA"), Public Law 104-13. It will be submitted to the Office of Management and Budget ("OMB") for review under Section 3507(d) of the PRA. Pursuant to its continuing effort to reduce paperwork burdens, the Commission invites OMB, the general public, and other Federal agencies to comment on the information collection(s) required by this Report and Order.

123. Public and agency comments on the request for approval of the information collection requirements are due 60 days after date of publication of this Order in the Federal Register. Comments regarding the requests for approval of the information collection should be submitted to Judy Boley Herman, Federal Communications Commission, Room 1-C804, 445 12th Street, SW, Washington, DC 20554, or via the Internet to Judith-B.Herman@fcc.gov.

124. *Further information* For general information concerning this rulemaking proceeding, contact William Bell at (202) 418-0741, or via internet at William.Bell@fcc.gov. For additional information concerning the information collection requirements in this document, contact Judith Boley Herman at 202-418-0214, or via the internet at Judith-B.Herman@fcc.gov.

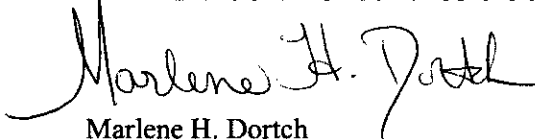
VII. ORDERING CLAUSES

125. IT IS ORDERED, pursuant to Sections 4(i), 301, 302(a), 303(e), 303(f), 303(g), 303(n), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 4(i), 301, 302(a), 303(e), 303(f), 303(g), 303(n), and 303(r), that Sections 1.1307, 2.1033, 2.1204, and 25.132 of the Commission's rules ARE AMENDED as specified in Appendix B and that a new rule section 25.129, as set forth in Appendix B, IS ADOPTED, effective upon approved of information collection requirements by the Office of Management and Budget. The Commission will publish a document in the Federal Register announcing the effective date for these rule changes.

126. IT IS FURTHER ORDERED pursuant to Sections 4(i), 301, 303(c), 303(e), 303(f), 303(g), 303(n), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 4(i), 301, 303(c), 303(e), 303(f), 303(g), 303(n), and 303(r), that Sections 25.135, 25.136, 25.138, and 25.216 of the Commission's rules ARE AMENDED as specified in Appendix B, effective thirty days after publication of this order in the Federal Register.

127. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Second Report and Order, including the Final Regulatory Flexibility analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

A handwritten signature in black ink, appearing to read "Marlene H. Dortch", is written over the printed name.

Marlene H. Dortch
Secretary

APPENDIX A: Participants**Response to GMPCS rules and policies proposed in the 1999 NPRM**Comments

AMSC Subsidiary Corp.
The Boeing Company
COMSAT Corp.
Constellation Communications, Inc.
ICO Global Communications
Iridium LLC
Iridium North America
Leo One USA Corp.
L/Q Licensee, Inc., Globalstar, L.P., and Airtouch Satellite Services U.S., Inc.
Ministry of Ports and Telecommunications of Japan
Motorola, Inc.
National Telecommunications and Information Administration
Orbital Communications Corp.
Satellite Industry Association
Skybridge LLC
Teledesic LLC

Reply comments

AMSC Subsidiary Corp.
Constellation Communications, Inc.
Cornell University
Inmarsat, Ltd.
Iridium LLC
Motorola, Inc.
National Telecommunications and Information Administration
Satellite Industry Association
Teledesic LLC
TMI Communications and Co., Ltd.

Response to Further NPRM on out-of-band emissions limits

Inmarsat Ventures, PLC (petition for reconsideration and comments)
Mobile Satellite Ventures Subsidiary LLC (comments)
National Telecommunications and Information Administration (comments)
Stratos Communications, Inc. (reply comments)

APPENDIX B: Rule Changes

I. Rule Changes Pertaining to Equipment Authorization, Importation, and Licensing of Portable Earth-Station Transceivers

Title 47 of the Code of Federal Regulations, Part 1, is amended as follows:

1. Section 1.1307 is amended by inserting the following text after the third sentence in Paragraph (b):

§1.1307 Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.

* * * *

(b) * * *

Such compliance statements may be omitted from license applications for transceivers subject to the certification requirement in §25.129.

Title 47 of the Code of Federal Regulations, Part 2, is amended as follows:

1. Section 2.1033 is amended by inserting a new subparagraph (18) in Paragraph (c):

§2.1033 Application for certification

* * * *

(c) * * *

* * * *

(18) Applications for certification required by §25.129 shall include any additional equipment test data required by that section.

2. Section 2.1204 is amended by inserting a new subparagraph (10) in Paragraph (a):

§2.1204 Import Conditions

(a) * * *

* * * *

(10) Three or fewer portable earth-station transceivers, as defined in §25.129, are being imported by a traveler as personal effects and will not be offered for sale or lease in the United States.

Title 47 of the Code of Federal Regulations, Part 25, is amended as follows:

PART 25 – SATELLITE COMMUNICATIONS

1. The authority citation for Part 25 continues to read as follows:

AUTHORITY: 47 U.S.C. 701-744. Interprets or applies Sections 4, 301, 302, 303, 307, 309 and 332 of the Communications Act, as amended, 47 U.S.C. Sections 154, 301, 302, 303, 307, 309 and 332, unless otherwise noted.

2. A new Section 25.129 is added and reads as follows:

§25.129 Equipment authorization for portable earth-station transceivers

(a) Except as expressly permitted by §2.803 or §2.1204, prior authorization must be obtained pursuant to the equipment certification procedure in Part 2, Subpart J of this chapter for importation, sale or lease in the United States, or offer, shipment, or distribution for sale or lease in the United States of portable earth-station transceivers subject to regulation under Part 25. This requirement does not apply, however, to devices imported, sold, leased, or offered, shipped, or distributed for sale or lease before November 20, 2004.

(b) For purposes of this section, an earth-station transceiver is portable if it is a "portable device" as defined in §2.1093(b), *i.e.*, if its radiating structure(s) would be within 20 centimeters of the operator's body when the transceiver is in operation.

(c) In addition to the information required by §1.1307(b) and §2.1033(c), applicants for certification required by this section shall submit any additional equipment test data necessary to demonstrate compliance with pertinent standards for transmitter performance prescribed in §25.138, §25.202(f), §25.204, §25.209, and §25.216 and shall submit the statements required by §2.1093(c).

(d) Applicants for certification required by this section must submit evidence that the devices in question are designed for use with a satellite system that may lawfully provide service to users in the United States pursuant to an FCC license or order reserving spectrum.

3. Section 25.132 is amended by revising the first sentence of Paragraph (a) to read as follows:

§25.132 Verification of earth station antenna performance standards

(a) All applications for transmitting earth stations in the C and Ku-bands not subject to the certification requirement in §25.129 must be accompanied by a certificate pursuant to §2.902 of this chapter from the manufacturer of each antenna that the results of a series of radiation pattern tests performed on representative equipment in representative configurations by the manufacturer which demonstrates that the equipment complies with the performance standards set forth in §25.209.

* * * *

4. Section 25.135 is amended by revising Paragraphs (c) and (d) to read as follows:

§25.135 Licensing provisions for earth station networks in the non-voice, non-geostationary mobile-satellite service

* * * *

(c) Transceiver units in this service are authorized to communicate with and through U.S. authorized space stations only. No person without an FCC license for such operation may transmit to a space station in this service from anywhere in the United States except to receive service from the holder of a pertinent FCC blanket license or from another party with the permission of such a blanket licensee.

(d) The holder of an FCC blanket license for operation of transceivers for communication via a non-voice, non-geostationary mobile-satellite system shall be responsible for operation of any such transceiver to receive service provided by the blanket licensee or provided by another party with the blanket licensee's consent. Operators of non-voice, non-geostationary mobile-satellite systems shall not transmit communications to or from user transceivers in the United States unless such communications are authorized under a service contract with the holder of a pertinent FCC blanket license or under a service contract another party with authority for such transceiver operation delegated by such a blanket licensee.

5. Section 25.136 is amended by revising the caption and Paragraphs (b) and (c) to read as follows:

§25.136 Licensing provisions for user transceivers in the 1.6/2.4 GHz, 1.5/1.6 GHz, and 2 GHz Mobile Satellite Services

* * * *

(b) No person without an FCC license for such operation may transmit to a space station in this service from anywhere in the United States except to receive service from the holder of a pertinent FCC blanket license or from another party with the permission of such a blanket licensee.

(c) The holder of an FCC blanket license for operation of transceivers for communication via a 1.6/2.4 GHz, 1.5/1.6 GHz, or 2 GHz Mobile Satellite Service system shall be responsible for operation of any such transceiver to receive service provided by that licensee or provided by another party with the blanket licensee's consent. Operators of such satellite systems shall not transmit communications to or from user transceivers in the United States unless such communications are authorized under a service contract with the holder of a pertinent FCC blanket license for transceiver operation or under a service contract with another party with authority for such transmission delegated by such a blanket licensee.

6. Section 25.138 is amended by adding the following text to Paragraph (f):

§25.138 Blanket licensing provisions of GSO FSS Earth Stations in the 18.3-18.8 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 28.35-28.6 GHz (Earth-to-space), and 29.25-30.0 GHz (Earth-to-space) bands.

* * * *

(f) * * *

The holder of an FCC blanket license pursuant to this section shall be responsible for operation of any transceiver to receive GSO FSS service provided by that licensee or provided by another party with the blanket licensee's consent. Operators of GSO FSS systems shall not transmit communications to or from user transceivers in the United States unless such communications are authorized under a service contract with the holder of a pertinent FCC blanket license or under a service contract with another party with authority for such transceiver operation delegated by such a blanket licensee.

II. Rule Changes Pertaining to Emission Limits for MSS Transceivers

Title 47 of the Code of Federal Regulations, Part 25, is amended as follows:

1. Paragraph (a) of Section 25.216 is amended to read as follows:

§25.216 Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite service.

(a) The e.i.r.p. density of emissions from mobile earth stations placed in service on or before July 21, 2002 with assigned uplink frequencies between 1610 MHz and 1660.5 MHz shall not exceed -70 dBW/MHz, averaged over any 2 millisecond active transmission interval, in the band 1559-1587.42 MHz. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth generated by such stations shall not exceed -80 dBW, averaged over any 2 millisecond active transmission interval, in that band.

2. Paragraph (b) of Section 25.216 is amended to read as follows:

(b) The e.i.r.p. density of emissions from mobile earth stations placed in service on or before July 21, 2002 with assigned uplink frequencies between 1610 MHz and 1626.5 MHz shall not exceed -64 dBW/MHz, averaged over any 2 millisecond active transmission interval, in the band 1587.42-1605 MHz. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth generated by such stations shall not exceed -74 dBW, averaged over any 2 millisecond active transmission interval, in the 1587.42-1605 MHz band.

3. Paragraph (c) of Section 25.216 is amended to read as follows:

(c) The e.i.r.p. density of emissions from mobile earth stations placed in service after July 21, 2002 with assigned uplink frequencies between 1610 MHz and 1660.5 MHz shall not exceed -70 dBW/MHz, averaged over any 2 millisecond active transmission interval, in the band 1559-1605 MHz. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed -80 dBW, averaged over any 2 millisecond active transmission interval, in the 1559-1605 MHz band.

4. Paragraph (d) of Section 25.216 is amended to read as follows:

(d) As of January 1, 2005, the e.i.r.p. density of emissions from mobile earth stations placed in service on or before July 21, 2002 with assigned uplink frequencies between 1610 MHz and 1660.5 MHz (except Standard A and B Inmarsat terminals used as Global Maritime Distress and Safety System ship earth stations) shall not exceed -70dBW/MHz, averaged over any 2 millisecond active transmission interval, in the 1559-1605 MHz band. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed -80 dBW, averaged over any 2 millisecond active transmission interval, in the 1559-1605 MHz band. Standard A Inmarsat terminals used as Global Maritime Distress and Safety System ship earth stations that do not meet the e.i.r.p. density limits specified in this paragraph may continue operation until December 31, 2007. Inmarsat-B terminals manufactured more than six months after Federal Register publication of the rule changes adopted in FCC 03-283 must meet these limits. Inmarsat B terminals manufactured before then are temporarily grandfathered under the condition that no interference is caused by these terminals to aeronautical satellite radio-navigation systems. The full-compliance deadline for grandfathered Inmarsat-B terminals is December 31, 2012.

5. Paragraph (e) of Section 25.216 is amended to read as follows:

(e) The e.i.r.p density of emissions from mobile earth stations with assigned uplink frequencies between 1990 MHz and 2025 MHz shall not exceed -70 dBW/MHz, averaged over any 2 millisecond active transmission interval, in frequencies between 1559MHz and 1610 MHz. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth from such stations between 1559 MHz and 1605 MHz shall not exceed -80 dBW, averaged over any 2 millisecond active transmission interval. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth from such stations between 1605 MHz and 1610 MHz manufactured more than six months after Federal Register publication of the rule changes adopted in FCC 03-283 shall not exceed -80 dBW, averaged over any 2 millisecond active transmission interval.

6. Section 25.216 is amended by inserting the following paragraphs after Paragraph (f):

(g) Mobile earth stations manufactured more than six months after Federal Register publication of the rule changes adopted in FCC 03-283 with assigned uplink frequencies in the 1610-1626.5 MHz band shall suppress the power density of emissions in the 1605-1610 MHz band-segment to an extent determined by linear interpolation from -70 dBW/MHz at 1605 MHz to -10 dBW/MHz at 1610 MHz averaged over any 2 millisecond active transmission interval. The e.i.r.p of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed a level determined by linear interpolation from -80 dBW at 1605 MHz to -20 dBW at 1610 MHz, averaged over any 2 millisecond active transmission interval.

(h) Mobile earth stations manufactured more than six months after Federal Register publication of the rule changes adopted in FCC 03-283 with assigned uplink frequencies in the 1626.5-1660.5 MHz band shall suppress the power density of emissions in the 1605-1610 MHz band-segment to an extent determined by linear interpolation from -70 dBW/MHz at 1605 MHz to -46 dBW/MHz at 1610 MHz, averaged over any 2 millisecond active transmission interval. The e.i.r.p of discrete emissions of less

than 700 Hz bandwidth from such stations shall not exceed a level determined by linear interpolation from -80 dBW at 1605 MHz to -56 dBW at 1610 MHz, averaged over any 2 millisecond active transmission interval.

(i) The peak e.i.r.p density of carrier-off state emissions from mobile earth stations manufactured more than six months after Federal Register publication of the rule changes adopted in FCC 03-283 with assigned uplink frequencies between 1 and 3 GHz shall not exceed -80 dBW/MHz in the 1559-1610 MHz band averaged over any 2 millisecond active transmission interval.

(j) A Root-Mean-Square detector shall be used for all power density measurements.

APPENDIX C

Final Regulatory Flexibility Analysis

1999 NPRM. The Regulatory Flexibility Act of 1980, as amended (RFA),¹⁸⁴ requires that a regulatory flexibility analysis be prepared for notice-and-comment rule making proceedings, unless the agency certifies that “the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities.”¹⁸⁵ The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”¹⁸⁶ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.¹⁸⁷ A “small business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).¹⁸⁸

As proposed in a Notice of Proposed Rulemaking issued in 1999, this order amends the Commission’s rules to require authorization to be obtained in advance for domestic sale or lease, importation for domestic sale or lease, or offering, shipment, or distribution for domestic sale or lease of portable, land-based earth-station transceivers. The authorization procedure, which is specified in previously adopted provisions in Part 2 of the Commission’s rules, requires submission of test data proving compliance with the Commission’s pertinent technical requirements. The Notice of Proposed Rulemaking included an Initial Regulatory Flexibility Analysis (IRFA) pertaining to the proposed equipment-authorization requirement and invited comment on alternative authorization procedures that might minimize economic impact on small entities.¹⁸⁹ The comments filed did not discuss the IRFA.

To obtain authorization required under the new rules for importation, distribution, or sale of portable, land-based earth-station transceivers, test data must be submitted to prove that the devices meet pertinent technical requirements in the Commission’s rules. Because such testing would be necessary in any event to ensure that the devices can be lawfully operated in compliance with existing rule requirements, we do not believe that the requirement to submit test data will have a significant adverse economic impact on anyone. We are postponing the effective date of the authorization requirement for one year, moreover, to afford adequate time in advance for obtaining such authorization and for disposing of uncertificated devices in current inventories. We therefore certify that the equipment authorization requirement established by this order will not have significant economic impact on a substantial number of small entities.

¹⁸⁴ The RFA, *see* 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

¹⁸⁵ 5 U.S.C. § 605(b).

¹⁸⁶ 5 U.S.C. § 601(6).

¹⁸⁷ 5 U.S.C. § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

¹⁸⁸ 15 U.S.C. § 632.

¹⁸⁹ FCC 99-37, 14 FCC Rcd 5871 (1999) at ¶101.

2002 Further NPRM. This order also amends a rule section adopted last year in this proceeding, Section 25.216,¹⁹⁰ that specifies out-of-band emission limits for mobile earth-station transceivers licensed to transmit in frequencies between 1610 MHz and 1660.5 MHz or in the 2 GHz MSS band. Specifically, we amend Section 25.216 by prescribing a limit for carrier-off emissions, prescribing limits on narrowband emissions in the 1605-1610 MHz band, prescribing a stricter limit on wideband emissions in that band for transceivers with assigned frequencies between 1626.5 MHz and 1660.5 MHz, re-specifying the time interval for emission measurements, requiring use of RMS detectors for compliance testing, and specifying compliance deadlines for Inmarsat Standard-A and Standard-B terminals.

These changes were proposed in a Further Notice of Proposed Rulemaking¹⁹¹ released with the order adopting Section 25.216 or in public comments filed in response thereto. As required by the RFA, the Further NPRM included an IRFA pertaining to these further rulemaking proposals.¹⁹² The Commission sought written public comment on the proposals and on the IRFA. This Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.¹⁹³

Rulemaking Objectives

The general purposes of the amendments to Section 25.216 are to modify its provisions to better serve the objective of preventing interference with aircraft reception of satellite radio-navigation signals and establish equitable compliance deadlines for Standard A and Standard B Inmarsat earth-station transceivers.

Summary of Issues Raised by Public Comments in Response to the IRFA

No comments were filed specifically in response to the IRFA in the Further NPRM.

Description and Estimate of the Number of Small Entities to Which the New Rules Will Apply

The RFA directs agencies to describe, and, where feasible, estimate the number of, small entities that may be affected by the rules they adopt.¹⁹⁴ The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."¹⁹⁵ In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.¹⁹⁶ A "small business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).¹⁹⁷ For satellite telecommunication carriers and resellers, the SBA has established a small business size standard that excludes companies with annual

¹⁹⁰ 47 C.F.R. § 25.216.

¹⁹¹ FCC 02-134, 17 FCC Rcd 12941 (2002) at ¶¶ 80-87.

¹⁹² *Id.* at ¶101.

¹⁹³ See 5 U.S.C. § 604.

¹⁹⁴ 5 U.S.C. § 604(a)(3).

¹⁹⁵ 5 U.S.C. § 601(6).

¹⁹⁶ 5 U.S.C. § 601(3) (incorporating by reference the definition of "small-business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

¹⁹⁷ 15 U.S.C. § 632.

receipts above \$12.5 million.¹⁹⁸

The amended emission limits in Section 25.216 directly affect parties with licenses for operation of mobile earth stations subject to those limits, including owners of maritime vessels equipped with Standard A or Standard B Inmarsat transceivers. The Commission noted in the IRFA that ten companies held relevant blanket licenses and that four of them had annual revenue in excess of \$12.5 million but could not determine from available information whether any of the others were small entities.¹⁹⁹ We anticipate that blanket licenses will be issued within the next three years for 2 GHz MSS earth stations subject to Section 25.216, but we do not know how many of the recipients will be small entities. The SBA classifies commercial providers of water transportation (other than for sightseeing) as small entities if they have 500 or fewer employees.²⁰⁰ Of 1,627 providers of non-sightseeing water transportation counted in the 1997 U.S. Census that operated throughout the year, only 157 had more than 100 employees.²⁰¹ The SBA classifies providers of sightseeing transportation by water as small entities if their annual receipts are \$6 million or less.²⁰² Of 1,692 providers of sightseeing transportation by water counted in the 1997 census, only 32 had annual receipts in excess of \$6 million.²⁰³ Hence we assume that most owners of vessels equipped with Standard A or Standard B Inmarsat transceivers are small entities.

Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

The amended provisions of Section 25.216 do not impose reporting or recordkeeping requirements. Parties with licenses for operation of mobile earth stations subject to Section 25.216 will be obliged to ensure that the devices perform in compliance with the amended emission limits adopted in this order, however. Some licensees may find it necessary to alter, replace, or decommission equipment currently in service in order to comply with the amended limits.²⁰⁴ We do not know, nor do the comments filed in this proceeding indicate, how much additional expense licensees will incur to achieve compliance with the amended limits.

Steps Taken to Minimize Economic Impact on Small Entities and Significant Alternatives Considered

The RFA requires an agency to describe any significant alternatives considered that might reduce the economic impact on small entities, such as establishing different compliance or reporting requirements or timetables that take into account the resources available to small entities; clarifying, consolidating, or simplifying such requirements for such small entities; using performance rather than design standards; or completely or partially exempting small entities from new requirements.²⁰⁵

We have considered and adopted exemptions for the benefit of ship owners – most of which, we presume, for reasons stated previously, are small entities. To minimize the impact on ship owners using

¹⁹⁸ See 13 C.F.R. § 121.201, NAICS Code 513340.

¹⁹⁹ 17 FCC Rcd 12941, Appendix C, Sect. C. The Commission determined that four of the ten companies were not small entities but was unable to ascertain the status of the others.

²⁰⁰ See 13 C.F.R. § 121.201, NAICS Codes 483111-483114, 483211, and 43212.

²⁰¹ U.S. Census Bureau, 1997 Economic Census, Subject Series: Transportation and Warehousing, Table 2, "Employment Size of Establishments," NAICS code 483 (issued Oct. 2000).

²⁰² See 13 C.F.R. § 121.201, NAICS Code 487210.

²⁰³ U.S. Census Bureau, 1997 Economic Census, Subject Series: Transportation and Warehousing, Table 2, "Employment Size of Establishments," NAICS code 487210.

²⁰⁴ See *Second Report and Order*, ¶¶ 95-119, *supra*.

²⁰⁵ 5 U.S.C. § 605(c)(1)-(4).

Inmarsat Standard A transceivers as Global Maritime Distress and Safety System ("GMDSS") stations, we exempt such devices from the requirements of Section 25.216 until December 31, 2007, the planned termination date for Standard A services. To minimize the impact on ship owners using Inmarsat Standard B transceivers as GMDSS stations, we exempt such transceivers manufactured previously or within six months hereafter from pertinent Section 25.216 limits until December 31, 2012, subject to a no-interference condition.

Report to Congress: The Commission will send a copy of this order, including the final analysis in this appendix, in a report to Congress pursuant to the Congressional Review Act.²⁰⁶ In addition, the Commission will send a copy of this order, including this appendix, to the Chief Counsel for Advocacy of the SBA. A copy of the order, including the final regulatory flexibility analysis, will also be published in the Federal Register.²⁰⁷

²⁰⁶ 5 U.S.C. § 801(a)(1)(A).

²⁰⁷ See 5 U.S.C. § 604(b).